

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Cancelled).
2. (Currently Amended) ~~The printhead of claim 1~~ A printhead according to claim 55 wherein the spacing is between 0.2 microns and 10.0 microns.
3. (Currently Amended) A printhead according to claim 55 ~~The printhead of claim 1~~ wherein the spacing is between 0.5 microns and 5.0 microns.
4. (Currently Amended) A printhead according to claim 55 ~~The printhead of claim 1~~ wherein the spacing is between 1.0 microns and 3.0 microns.
5. (Cancelled).
6. (Currently Amended) A printhead according to claim 55 ~~The printhead of claim 1~~ being configured to print on a page and to be a page-width printhead.
7. (Currently Amended) A printhead according to claim 55 ~~The printhead of claim 1~~ wherein each heater element is in the form of a cantilever beam.
8. (Currently Amended) A printhead according to claim 55 ~~The printhead of claim 1~~ wherein each heater element is configured such that an actuation energy of less than 500 nanojoules (nJ) is required to be applied to that heater element to heat that heater element sufficiently to form a said bubble in the bubble-forming liquid thereby to cause the ejection of a said drop.
9. (Currently Amended) A printhead according to claim 55 ~~The printhead of claim 1~~ configured to receive a supply of the ejectable liquid at an ambient temperature, wherein each heater element is configured such that the energy required to be applied thereto to heat said part to cause the ejection of a said drop is less than the energy required to heat a volume

of said ~~ejectable~~ liquid equal to the volume of the said drop, from a temperature equal to said ambient temperature to said boiling point.

10. (Currently Amended) A printhead according to claim 55 further ~~The printhead of claim 1~~ comprising a substrate having a substrate surface, wherein the areal density of the nozzles relative to the substrate surface exceeds 10,000 nozzles per square cm of substrate surface.

11. (Currently Amended) A printhead according to claim 55 ~~The printhead of claim 1~~ wherein each heater element has two opposite sides and is configured such that a said gas bubble formed by that heater element is formed at both of said sides of that heater element.

12. (Currently Amended) A printhead according to claim 55 ~~The printhead of claim 1~~ wherein the bubble which each element is configured to form is collapsible and has a point of collapse, and wherein each heater element is configured such that the point of collapse of a bubble formed thereby is spaced from that heater element.

13. (Currently Amended) A printhead according to claim 55 further ~~The printhead of claim 1~~ comprising a structure that is formed by chemical vapor deposition (CVD), the nozzles being incorporated on the structure.

14. (Currently Amended) A printhead according to claim 55 further ~~The printhead of claim 1~~ comprising a structure which is less than 10 microns thick, the nozzles being incorporated on the structure.

15. (Currently Amended) A printhead according to claim 55 further ~~The printhead of claim 1~~ comprising a plurality of nozzle chambers each corresponding to a respective nozzle, and a plurality of said heater elements being disposed within each chamber, the heater elements within each chamber being formed on different respective layers to one another.

16. (Currently Amended) A printhead according to claim 55 ~~The printhead of claim 1~~ wherein each heater element is formed of solid material more than 90% of which, by atomic

proportion, is constituted by at least one periodic element having an atomic number below 50.

17. (Currently Amended) A printhead according to claim 55 ~~The printhead of claim 1~~ wherein each heater element includes solid material and is configured for a mass of less than 10 nanograms of the solid material of that heater element to be heated to a temperature above said boiling point thereby to heat said part of the ~~bubble forming liquid~~ to a temperature above said boiling point to cause the ejection of a said drop.

18. (Currently Amended) A printhead according to claim 55 ~~The printhead of claim 1~~ wherein each heater element is substantially covered by a conformal protective coating, the coating of each heater element having been applied substantially to all sides of the heater element simultaneously such that the coating is seamless.

19. (Cancelled)

20. (Currently Amended) A system according to claim 56 ~~The system of claim 19~~ wherein the spacing is between 0.2 microns and 10.0 microns.

21. (Currently Amended) A system according to claim 56 ~~The system of claim 19~~ wherein the spacing is between 0.5 microns and 5.0 microns.

22. (Currently Amended) A system according to claim 56 ~~The system of claim 19~~ wherein the spacing is between 1.0 microns and 3.0 microns.

23. (Currently Amended) A system according to claim 56 ~~The system of claim 19~~ being configured to support the bubble forming liquid in thermal contact with each said heater element, and to support the ejectable liquid adjacent each nozzle.

24. (Cancelled).

25. (Currently Amended) A system according to claim 56 ~~The system of claim 19~~ being configured to print on a page and to be a page-width printhead.

26. (Currently Amended) A system according to claim 56 ~~The system of claim 19~~ wherein each heater element is in the form of a cantilever beam.

27. (Currently Amended) A system according to claim 56 ~~The system of claim 19~~ wherein each heater element is configured such that an actuation energy of less than 500 nanojoules (nJ) is required to be applied to that heater element to heat that heater element sufficiently to form a said bubble in the bubble-forming liquid thereby to cause the ejection of a said drop.

28. (Currently Amended) A system according to claim 56 ~~The system of claim 19,~~ wherein the printhead is configured to receive a supply of the ejectable liquid at an ambient temperature, and wherein each heater element is configured such that the energy required to be applied thereto to heat said part to cause the ejection of a said drop is less than the energy required to heat a volume of said ejectable liquid equal to the volume of the said drop, from a temperature equal to said ambient temperature to said boiling point.

29. (Currently Amended) A system according to claim 56 further ~~The system of claim 19~~ comprising a substrate having a substrate surface, wherein the areal density of the nozzles relative to the substrate surface exceeds 10,000 nozzles per square cm of substrate surface.

30. (Currently Amended) A system according to claim 56 ~~The system of claim 19~~ wherein each heater element has two opposite sides and is configured such that a said gas bubble formed by that heater element is formed at both of said sides of that heater element.

31. (Currently Amended) A system according to claim 56 ~~The system of claim 19~~ wherein the bubble which each element is configured to form is collapsible and has a point of collapse, and wherein each heater element is configured such that the point of collapse of a bubble formed thereby is spaced from that heater element.

32. (Currently Amended) A system according to claim 56 ~~The system of claim 19~~ comprising a structure that is formed by chemical vapor deposition (CVD), the nozzles being incorporated on the structure.

33. (Currently Amended) A system according to claim 56 further ~~The system of claim 19~~ comprising a structure which is less than 10 microns thick, the nozzles being incorporated on the structure.

34. (Currently Amended) A system according to claim 56 further ~~The system of claim 19~~ comprising a plurality of nozzle chambers each corresponding to a respective nozzle, and a plurality of said heater elements being disposed within each chamber, the heater elements within each chamber being formed on different respective layers to one another.

35. (Currently Amended) A system according to claim 56 ~~The system of claim 19~~ wherein each heater element is formed of solid material more than 90% of which, by atomic proportion, is constituted by at least one periodic element having an atomic number below 50.

36. (Currently Amended) A system according to claim 56 ~~The system of claim 19~~ wherein each heater element includes solid material and is configured for a mass of less than 10 nanograms of the solid material of that heater element to be heated to a temperature above said boiling point thereby to heat said part of the ~~bubble-forming liquid~~ to a temperature above said boiling point to cause the ejection of a said drop.

37. (Currently Amended) A system according to claim 56 ~~The system of claim 19~~ wherein each heater element is substantially covered by a conformal protective coating, the coating of each heater element having been applied substantially to all sides of the heater element simultaneously such that the coating is seamless.

38. (Cancelled).

39. (Currently Amended) A method according to claim 57 ~~The method of claim 38~~ wherein the spacing is between 0.2 microns and 10.0 microns. .

40. (Currently Amended) A method according to claim 57 ~~The method of claim 38~~ wherein the spacing is between 0.5 microns and 5.0 microns.

41. (Currently Amended) A method according to claim 57 ~~The method of claim 38~~ wherein the spacing is between 1.0 microns and 3.0 microns.

42. (Cancelled).

43. (Currently Amended) A method according to claim 57 ~~The method of claim 38~~ wherein the printhead is configured to print on a page and to be a page-width printhead.

44. (Currently Amended) A method according to claim 57 ~~The method of claim 38~~ wherein said step of heating the at least one heater element is effected by applying an actuation energy of less than 500nJ to each such heater element.

45. (Currently Amended) A method according to claim 57 ~~The method of claim 38~~ wherein prior to the step of heating the at least one heater element, a supply of the ejectable liquid, at an ambient temperature, is fed to the printhead, wherein the step of heating is effected by applying heat energy to the at least one heater element, wherein said applied heat energy is less than the energy required to heat a volume of said ejectable liquid equal to the volume of said drop, from a temperature equal to said ambient temperature to said boiling point.

46. (Currently Amended) A method according to claim 57 ~~The method of claim 38~~ wherein the printhead includes a substrate on which said nozzles are disposed, the substrate having a substrate surface and the areal density of the nozzles relative to the substrate surface exceeding 10,000 nozzles per square cm of substrate surface.

47. (Currently Amended) A method according to claim 57 ~~The method of claim 38~~ wherein the at least one heater element has two opposing sides and the bubble is generated at both of said sides of each heated heater element

48. (Currently Amended) A method according to claim 57 ~~The method of claim 38~~ wherein the generated bubble is collapsible and has a point of collapse, and is generated such that the point of collapse is spaced from the at least one heater element.

49. (Currently Amended) A method according to claim 57 ~~The method of claim 38~~ wherein the printhead has a structure that is less than 10 microns thick and which incorporates said nozzles thereon.

50. (Currently Amended) A method according to claim 57 ~~The method of claim 38~~ wherein the nozzles of the printhead are formed by chemical vapor deposition (CVD).

51. (Currently Amended) A method according to claim 57 ~~The method of claim 38~~ wherein the printhead has a plurality of nozzle chambers each chamber corresponding to a respective nozzle and a plurality of said heater elements are formed in each of the chambers, such that the heater elements in each chamber are formed on different respective layers to one another.

52. (Currently Amended) A method according to claim 57 ~~The method of claim 38~~ wherein the heater elements are formed of solid material more than 90% of which, by atomic proportion, is constituted by at least one periodic element having an atomic number below 50.

53. (Currently Amended) A method according to claim 57 ~~The method of claim 38~~ wherein the heater elements include solid material and wherein the step of heating at least one heater element comprises heating a mass of less than 10 nanograms of the solid material of each such heater element to a temperature above said boiling point.

54. (Currently Amended) A method according to claim 57 ~~The method of claim 38~~ wherein a conformal protective coating is applied to substantially to all sides of each of the heater elements simultaneously, such that the coating is seamless.

55. (New) An inkjet printhead comprising:

a plurality of nozzles, each nozzle defining a planar opening that is symmetrical about at least one axis;

a bubble forming chamber corresponding to each of the nozzles respectively, the bubble forming chambers adapted to contain a liquid, the nozzle being formed in one wall of the bubble forming chamber and a liquid inlet formed in an opposing wall, with at least one side wall extending between the opposing walls;

a heater element suspended within each of the bubble forming chambers such that heating the heater element to a temperature above the boiling point of the liquid forms a gas bubble that causes the ejection of a drop of the liquid through the nozzle; wherein,

the heater element has a planar structure parallel to the plane of the nozzle and the heater element has a shape with at least one axis of symmetry parallel to the at least one axis symmetry of the nozzle; and,

the spacing between the heater element and the side wall is between 0.1 microns and 20 microns.

56. (New) A printer system incorporating a printhead according to claim 55.

57. (New) A method of ejecting drops of liquid from a printhead, the printhead comprising a plurality of nozzles, each nozzle defining a planar opening that is symmetrical about at least one axis;

a bubble forming chamber corresponding to each of the nozzles respectively, the bubble forming chambers adapted to contain a liquid, the nozzle being formed in one wall of the bubble forming chamber and a liquid inlet formed in an opposing wall, with at least one side wall extending between the opposing walls; and,

a heater element suspended within each of the bubble forming chambers, the heater element having a planar structure parallel to the plane of the nozzle and the heater element having a shape with at least one axis of symmetry parallel to the at least one axis symmetry of the nozzle; wherein,

the spacing between the heater element and the side wall is between 0.1 microns and 20 microns;

the method comprising the steps of:

heating the heater element to a temperature above the boiling point of the liquid forms a gas bubble that causes the ejection of a drop of the liquid through the nozzle; and

supplying the bubble forming chamber with a replacement volume of the liquid equivalent to the volume of the drop ejected through the nozzle.